

The relationship between the presence of ileus and the clinical picture in cases with gastrointestinal bezoar and its effect on the duration of hospitalization

Gastrointestinal bezoar and ileus

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Abstract

Aim: In this retrospective study, we aimed to investigate the relationship between the presence of ileus and the clinical picture in GI bezoar cases and its effect on the length of hospital stay.

Materials and Methods: The study was conducted by Op. Dr. Vahit Mutlu at various centers used patient files that underwent surgery between January 2007 and December 2020. The study analyzed the patients' gender, age, symptoms (abdominal pain, nausea, vomiting, gas), duration of complaints, ileus findings, comorbidities, and operation times.

Results: Gender, constipation, DM, CVD, hypothyroid, location, surgical method, recurrence, and duration differences were statistically insignificant ($p>0.05$). Abdominal pain, nausea & vomiting, and HT were significantly more common in the ileus group ($p<0.05$). Having ileus was significantly correlated with abdominal pain ($r=0.441$; $p<0.01$), nausea & vomiting ($r=0.526$; $p<0.01$), and HT ($r=0.262$; $p<0.05$). All other baseline characteristics were insignificantly correlated with having ileus ($p>0.05$). Abdominal pain ($B=-1.665$; $p<0.05$) and nausea & vomiting ($B=1.937$; $p<0.01$) had a positive and significant effect on ileus. The effect of hypertension was insignificant ($p>0.05$). In no ileus patients, post-operation hospitalization duration was significantly correlated with age ($r=0.432$; $p<0.05$) and surgical method ($r=-0.473$; $p<0.05$). In ileus patients, correlations between baseline characteristics and post-operation hospitalization duration were insignificant ($p>0.05$).

Discussion: Among other symptoms, abdominal pain, nausea, and vomiting were the clinical findings that were multivariately significant in patients with ileus, and the postoperative hospital stay in patients with ileus was independent of age compared to patients without ileus.

Keywords

bezoar, ileus, gastrointestinal diseases

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Introduction

Gastrointestinal bezoars (GIB) are clusters of inedible or indigestible material within the digestive tract and are a significant gastrointestinal problem. The word derives from the Persian word “antidote” because bezoars obtained from animals were believed to be antidotes in ancient times [1]. While bezoar formation is rare in the gastrointestinal (GI) system, it is often associated with ulcerative lesions in the stomach, small bowel obstruction, and ileus. Four forms are generally recognized, depending on the substance that forms the bezoar mass: pharmacobezoars, phytobezoars, trichobezoars, and lactobezoars [2].

Furthermore, drug bezoars, which rarely occur due to drug use, also occur [3]. While both computed tomography (CT) and sonography are effective in diagnosing bezoars, CT provides more accurate results, revealing bezoar characteristics [4]. While GI bezoars are sometimes asymptomatic, in some cases they can cause symptoms such as dysphagia, abdominal pain, ulcerative bleeding, hematemesis, and even life-threatening obstruction, gastrointestinal bleeding, or perforation [5]. Symptoms such as nausea, vomiting, and chronic abdominal pain have been reported to be common in pediatric cases [6].

Therefore, bezoars must be removed from the GI tract. Bezoar removal is the most common treatment option. While endoscopic bezoar removal is effective, surgical intervention is necessary in some cases [7]. While endoscopy is generally effective for small bezoars, intestinal obstruction should be considered for those larger than 9 cm in diameter and in older patients [8,9]. Ileus is an intestinal obstruction that represents the loss of the intestines’ normal propulsive capacity. Its pathophysiology involves gas and fluid accumulation with high intraluminal pressure, microcirculatory disorders, and mucosal barrier disorders [10].

This obstruction can be functional and mechanical, but it can also occur postoperatively [11,12-14]. This intestinal obstruction can prevent intestinal function and lead to numerous health problems, particularly in the digestive system. The relationship between bezoars and ileus can be due to the physical obstruction caused by bezoars in ileus, as well as the progression of gastric bezoars to ileus [15].

Furthermore, procedures such as pancreaticojejunal stents have been reported to cause ileus bezoars [16]. Postoperative malnutrition is also among the causes of ileus bezoars [17]. Regardless of the cause, ileus bezoars and ileus obstruction are important issues for individuals’ quality of life and gastrointestinal health.

While studies in the literature report the relationship between ileus obstruction and bezoars, including the transition of bezoars to ileus or other causes, no adequate and comprehensive research has been found to determine which gastrointestinal bezoars cause ileus obstruction [11-15]. Furthermore, understanding the impact of not only bezoars located in the ileus but also all other GI bezoars on ileus obstruction may be important for clinical course and treatment management. Therefore, this study aimed to examine the relationship between the presence of ileus and the clinical presentation and its impact on hospitalization duration in patients with GI bezoars.

Materials and Methods

Research Model

The study was designed using a retrospective file review using descriptive and correlational screening models. First, the clinical and baseline parameters of bezoar patients with and without ileus were compared, and then these variables were compared based on the presence of ileus. Finally, a correlational screening model was used using binary logistic regression analysis, with ileus as a dummy variable.

Patients

Patients who underwent bezoar surgery by the researcher between 2007 and 2020 were included. The study was conducted using patient files from various centers operated on by Op. Dr. Vahit Mutlu. According to the power analysis conducted in this context, a total of 64 patient files were targeted, with an effect size of 0.30, an 80% confidence interval, and a significance level of 0.05. Patient inclusion criteria were as follows:

- Patients who have undergone gastric bezoar surgery,
- Age 18 and over,
- Have undergone gastric bezoar surgery,
- Have complete patient data in their files,
- Have no adverse health conditions that could affect the study results

The study’s exclusion criteria were:

- Those under 18 years of age,
- Those with comorbid conditions that could affect the study results,
- Those with relevant data in their patient files

Abdominal surgery, abdominal and inguinal hernias, intestinal diseases, and gastrointestinal system disorders are the most commonly reported causes of ileus in the literature [11-14]. Therefore, when evaluating patients for ileus, comorbidities and patient epicrisis reports were also examined along with these parameters.

Statistical Methods

Nominal and ordinal data were described using frequency analysis, and measurement data were described using mean, standard deviation, median, and range of variation. Fisher’s Exact and Chi-Square tests were used for differences between nominal and ordinal data. The Kolmogorov-Smirnov test was used to determine the conformity of measurement data to a normal distribution. The Independent samples t-test was used for pairwise differences in normally distributed parameters, and the Mann-Whitney U test was used for non-normally distributed data. Spearman’s rho correlation analysis was performed for relational screening analysis. Binary Logistic Regression analysis was performed for effect analysis to minimize linearization deviations [18,19]. All analyses were performed using SPSS 25.0 for Windows at a significance level of 0.05 and a 95% confidence interval.

Ethical Approval

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Results

The mean age of all the bezoar group was 63.10 ± 12.60 , with 27 to 84. The mean age of the ileus group was lower, but the

difference was insignificant ($p > 0.05$). 61.3% of the non-ileus group and 48.8% of the ileus group were females. 54.8% of the non-ileus group had abdominal pain, 22.6% had nausea and vomiting, 12.9% had constipation, 16.1% had DM, 9.7% had HT, 6.5% had CVD, and 67.7% had abdominal surgery history. 92.7% of the non-ileus group had abdominal pain, 75.6% had nausea and vomiting, 29.3% had constipation, 24.4% had DM, 31.7% had HT, 17.1% had CVD, and 51.2% had abdominal surgery history. Gender, constipation, DM, CVD, hypothyroid, location, surgical method, recurrence, and duration differences were statistically insignificant ($p > 0.05$). Abdominal pain, nausea & vomiting, and HT were significantly more common in the ileus

group ($p < 0.05$) (Table 1). Having ileus was significantly correlated with abdominal pain ($r = 0.441$; $p < 0.01$), nausea & vomiting ($r = 0.526$; $p < 0.01$), and HT ($r = 0.262$; $p < 0.05$). All other baseline characteristics were insignificantly correlated with having ileus ($p > 0.05$). Binary logistic regression for effects of significantly correlated factors on ileus results showed that abdominal pain ($B = -1.665$; $p < 0.05$) and nausea & vomiting ($B = 1.937$; $p < 0.01$) had a positive and significant effect on ileus. The effect of hypertension was insignificant ($p > 0.05$) (Table 2). In no ileus patients, post-operation hospitalization duration was significantly correlated with age ($r = 0.432$; $p < 0.05$)

Table 1. Baseline characteristics of patient groups and difference analysis results

	Ileus			p value
	No (n=31)	Yes (n=40)	Total (n=71)	
Age, years, mean $\pm$ SD	63.48 $\pm$ 13.12	62.80 $\pm$ 12.34	63.10 $\pm$ 12.60	0.822a
Median (Min-Max)	63.00 (27.00-84.00)	63.00 (31.00-83.00)	63.00 (27.00-84.00)	
Gender, n (%)				0.207b
Female	19 (61.3)	20 (48.8)	39 (54.2)	
Male	12 (38.7)	21 (51.2)	33 (45.8)	
Abdominal pain, n (%)	17 (54.8)	38 (92.7)	55 (76.4)	0.000b
Nausea & Vomiting, n (%)	7 (22.6)	31 (75.6)	38 (52.8)	0.000b
Constipation, n (%)	4 (12.9)	12 (29.3)	16 (22.2)	0.084b
DM, n (%)	5 (16.1)	10 (24.4)	15 (20.8)	0.290b
HT, n (%)	3 (9.7)	13 (31.7)	16 (22.2)	0.024b
CVD, n (%)	2 (6.5)	7 (17.1)	9 (12.5)	0.162b
Hypothyroid, n (%)	-	2 (4.9)	2 (2.8)	0.321b
ACRF, n (%)	2 (6.5)	4 (9.8)	6 (8.3)	0.479b
Abdominal surgery history, n (%)	21 (67.7)	21 (51.2)	42 (58.3)	0.121b
Diagnosis method, n (%)				0.076b
Abdominal radiography	9 (29.0)	5 (12.5)	14 (19.7)	
Computerized tomography	22 (71.0)	35 (87.5)	57 (80.3)	
Location, n (%)				0.262c
Stomach	12 (38.7)	6 (14.6)	18 (25.0)	
Jejunum	4 (12.9)	8 (19.5)	12 (16.7)	
Ileum	10 (32.3)	20 (48.8)	30 (41.7)	
Colon	-	3 (7.3)	3 (4.2)	
Stomach + ileum	4 (12.9)	3 (7.3)	7 (9.7)	
Duodenum	1 (3.2)	1 (2.4)	2 (2.8)	0.420b
Second bezoar, n (%)	9 (29.0)	14 (34.1)	23 (31.9)	
Surgical methods, n (%)				0.602b
Enterotomy	12 (63.2)	26 (63.4)	38 (63.3)	
Milking	7 (36.8)	15 (36.6)	22 (36.7)	
Preop endoscopy, n (%)	12 (40.0)	2 (4.9)	14 (19.7)	0.000b
Recurrence, n (%)	1 (3.2)	-	1 (1.4)	0.431b
Complaint duration, day, mean $\pm$ SD	41.03 $\pm$ 135.42	5.88 $\pm$ 4.87	20.44 $\pm$ 88.09	0.395d
Median (Min-Max)	5.00 (0.00-730.00)	4.00 (1.00-30.00)	4.00 (0.00-730.00)	
Maximum diameter, cm, mean $\pm$ SD	7.36 $\pm$ 3.02	5.72 $\pm$ 2.22	6.41 $\pm$ 2.68	0.056d
Median (Min-Max)	6.00 (4.50-15.00)	5.00 (2.50-11.00)	6.00 (2.50-15.00)	
Hospitalization duration, day, mean $\pm$ SD	10.48 $\pm$ 5.43	9.51 $\pm$ 4.83	9.93 $\pm$ 5.08	0.448d
Median (Min-Max)	9.00 (4.00-25.00)	8.00 (4.00-27.00)	8.50 (4.00-27.00)	
Preop hospitalization, day, mean $\pm$ SD	2.06 $\pm$ 2.28	1.80 $\pm$ 2.47	1.92 $\pm$ 2.38	0.543d
Median (Min-Max)	1.00 (0.00-8.00)	1.00 (0.00-14.00)	1.00 (0.00-14.00)	
Postop hospitalization, day, mean $\pm$ SD	8.26 $\pm$ 5.13	8.00 $\pm$ 4.41	8.11 $\pm$ 4.70	0.945d
Median (Min-Max)	7.00 (0.00-24.00)	7.00 (3.00-26.00)	7.00 (0.00-26.00)	

a. Independent Samples T-test, b. Fisher's Exact Test, c. Chi-Square Test, d. Mann-Whitney U Test, SD: Standard Deviation, DM: Diabetes Mellitus, HT: Hypertension, CVD: Cardiovascular Disease, ACRF: Acute & Chronic Renal Failure.

Table 2. Binary logistic regression for the effects of significantly correlated factors on ileus

	B	S.E.	Wald	df	p	OR	95% C.I. for OR	
							Lower	Upper
Abdominal pain	1.665	0.777	4.590	1	0.032	0.189	0.041	0.868
Nausea & vomiting	1.937	0.602	10.362	1	0.001	0.144	0.044	0.469
Hypertension	0.454	0.791	0.330	1	0.566	0.635	0.135	2.994
Constant	2.001	0.720	7.719	1	0.005	7.397		

B: Regression coefficient, S.E.: Standard Error, df: degree of freedom, OR: Odds Ratio, C.I.: Confidence Interval.

Table 3. Spearman’s rho correlation between post-op hospitalization and baseline characteristics for ileus group

Postop hospitalization	No Ileus		Ileus	
	r	p	r	p
Age	0.432*	0.015	0.173	0.286
Gender	0.242	0.189	-0.071	0.660
Abdominal pain	0.084	0.654	0.076	0.637
Nausea vomiting	-0.299	0.102	-0.109	0.497
Constipation	-0.238	0.197	-0.176	0.270
Complaint duration day	0.131	0.499	0.063	0.697
DM	0.074	0.692	-0.221	0.165
HT	0.202	0.275	0.202	0.206
CVD	0.037	0.844	0.258	0.104
ACRF	-0.059	0.752	-0.109	0.498
Abdominal surgery history	0.074	0.693	-0.290	0.066
Diagnosis method	-0.060	0.749	-0.003	0.984
Location	0.248	0.178	0.079	0.625
Maximum diameter	0.256	0.305	0.146	0.485
Seond bezoar	-0.128	0.493	-0.279	0.077
Surgical methods (1: Enterotomy, 2: Milking)	-0.473*	0.041	-0.128	0.427

DM=Diabetes Mellitus, HT= Hypertension, CVD= Cardiovascular Disease, ACRF= Acute & Chronic Renal Failure.

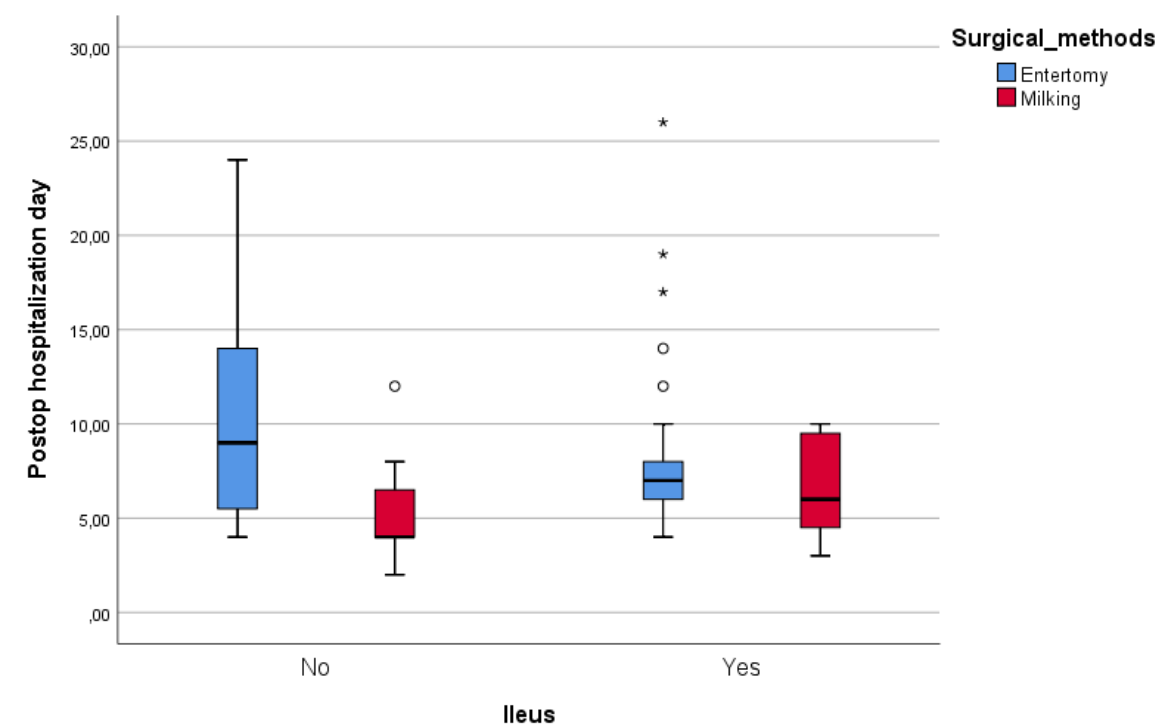


Figure 1. Post-operation hospitalization day according to the ileus and surgical methods

and surgical method ($r = -0.473$; $p < 0.05$). In ileus patients, correlations between baseline characteristics and post-operation hospitalization duration were insignificant ($p > 0.05$) (Table 3).

In both groups, post-operation hospitalization duration was significantly higher in Enterotomy ($p < 0.05$) (Figure 1).

Discussion

This study aimed to examine the relationship between the presence of ileus and the clinical presentation in patients with GI bezoars and its impact on length of stay. Data from 71 patients with and without ileus were analyzed. Among other symptoms, abdominal pain, nausea, and vomiting were the most significant clinical findings in patients with ileus, and postoperative length of stay in patients with ileus was independent of age compared to those without ileus.

Bezoars are inedible, indigestible foreign body masses within the stomach or gastrointestinal system and can often cause problems such as ulcerative colitis, bleeding, and indigestion [1-4]. Ileus refers to the obstruction of the intestines, resulting in loss of propulsion [10-14]. Ileus occurring in the intestines prevents the intestines from performing their normal digestive functions and can lead to gastrointestinal problems [12-14]. Abdominal surgery is one of the most important known causes of ileus, and factors such as abdominal and inguinal hernias, intestinal diseases, and gastrointestinal system disorders are among the important causes of ileus [11-14]. Biffl and Moore reported that bezoar migration caused ileus in patients with a nidus bezoar [20]. Dedes et al. reported that bezoars formed after gastric resection surgery due to malnutrition, which in turn caused ileus. Dikicier et al. reported that there was no significant difference between ileus caused by bezoars and ileus caused by other causes, and that bezoars may be associated with ileus in 0.4% to 4% of cases [21,22]. Wang et al. reported how to visualize bezoar-induced obstruction and ileus and their similarity to normal ileus [23]. However, these studies only examined the cause-and-effect relationship between ileus and bezoar; non-bezoar-induced ileus and bezoar were not adequately examined.

In our study, Gender, constipation, DM, CVD, hypothyroid, location, surgical method, recurrence, and duration differences were statistically insignificant. Abdominal pain, nausea & vomiting, and HT were significantly more common in the ileus group. Having ileus was significantly correlated with abdominal pain, nausea & vomiting, and HT. All other baseline characteristics were insignificantly correlated with having ileus. Abdominal pain, nausea, and vomiting had a positive and significant effect on ileus. The effect of hypertension was insignificant. In no ileus patients, post-operation hospitalization duration was significantly correlated with age and surgical method. In ileus patients, correlations between baseline characteristics and post-operation hospitalization duration were insignificant.

Limitations

The most significant limitation of the study is the varying definitions of bezoar and ileus, resulting in varying sources and definitions in the literature, as well as the diverse clinical characteristics of the patients. Furthermore, limited information regarding the physical formation process and effects of bezoars,

their diagnosis, and their mechanism of action are among the limitations of the study.

Another significant limitation of the study is the lack of history and sufficient knowledge of potential risk factors in bezoar patients. Although overall health literacy levels are increasing, there are still gaps in knowledge regarding health-related follow-up, particularly regarding nutrition.

Contribution to Literature and Clinical Practice

While studies on bezoars in the literature generally report the clinical course and treatment of patients with bezoars, there are insufficient multicenter, long-term studies investigating the relationship with ileus. From a clinical perspective, it would be beneficial to demonstrate this relationship for the management of ileus and bezoars. Therefore, this study is important because it contributes positively to the literature.

The research's contribution to clinical practice is that it highlights the relationship between bezoars and ileus, suggesting a clinical suspicion of ileus in patients with abdominal pain and nausea, and vomiting, even if symptoms are not directly observed. Further research may establish a direct relationship between ileus and these variables.

Conclusion

Among other symptoms, abdominal pain, nausea, and vomiting were the most significant clinical findings in patients with ileus, and the postoperative length of stay in patients with ileus was independent of age compared to those without ileus. Although there were similar symptoms between ileus and constipation, multivariate analysis revealed abdominal pain, nausea, and vomiting as indicators of ileus. While clinical diagnosis is easy and possible when an obvious obstruction is evident in ileus, clinical diagnosis can be difficult when the intestines lose their ability to propel. In this regard, abdominal pain and nausea, and vomiting are particularly important.

Although postoperative length of stay was not directly associated with ileus, the lack of correlation between postoperative length of stay and age in patients with ileus suggests that outcomes from bezoar surgery in patients with ileus may differ significantly with larger sample sizes. Therefore, studies with larger samples and cross-comparisons across different centers may be conducted.

Scientific Responsibility Statement

The authors declare that they are responsible for the article's scientific content, including study design, data collection, analysis and interpretation, writing, and some of the main line, or all of the preparation and scientific review of the contents, and approval of the final version of the article.

Animal and Human Rights Statement

All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

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Conflict of Interest

The authors declare that there is no conflict of interest.

References

- Eng K, Kay M. Gastrointestinal bezoars: History and current treatment paradigms. *Gastroenterol Hepatol* (NY). 2012;8(11):776-8.
- Iwamuro M, Okada H, Matsueda K, et al. Review of the diagnosis and management of gastrointestinal bezoars. *World J Gastrointest Endosc*. 2015;7(4):336-45.
- Taylor JR, Streetman DS, Castle SS. Medication bezoars: a literature review and report of a case. *Ann Pharmacother*. 1998;32(9):940-6.

4. Ripollés T, García-Aguayo J, Martínez MJ, Gil P. Gastrointestinal bezoars: sonographic and CT characteristics. *AJR Am J Roentgenol*. 2001;177(1):65-9.
5. Paschos KA, Chatzigeorgiadis A. Pathophysiological and clinical aspects of the diagnosis and treatment of bezoars. *Ann Gastroenterol*. 2019;32(3):224-32.
6. Shah M, Wan DQ, Liu Y, Rhoads JM. Gastric Bezoar: Retrieve it, Leave it, or Disbelieve it? *J Pediatr Gastroenterol Nutr*. 2021;72(2):e31-e36.
7. Park SE, Ahn JY, Jung HY, et al. Clinical outcomes associated with treatment modalities for gastrointestinal bezoars. *Gut Liver*. 2014;8(4):400-7.
8. Liu LN, Wang L, Jia SJ, Wang P. Clinical features, risk factors, and endoscopic treatment of bezoars: A retrospective analysis from a single center in Northern China. *Med Sci Monit*. 2020;26:e926539.
9. Altintoprak F, Gemici E, Yildiz YA, Yener Uzunoglu M, Kivilcim T. Intestinal obstruction due to bezoar in elderly patients: risk factors and treatment results. *Emerg Med Int*. 2019;2019:3647356.
10. Vilz TO, Stoffels B, Strassburg C, Schild HH, Kalff JC. Ileus in adults. *Dtsch Arztebl Int*. 2017;114(29-30):508-18.
11. Madl C, Druml W. Gastrointestinal disorders of the critically ill. Systemic consequences of ileus. *Best Pract Res Clin Gastroenterol*. 2003;17(3):445-56.
12. Luckey A, Livingston E, Taché Y. Mechanisms and treatment of postoperative ileus. *Arch Surg*. 2003;138(2):206-14.
13. Harnsberger CR, Maykel JA, Alavi K. Postoperative ileus. *Clin Colon Rectal Surg*. 2019;32(3):166-70.
14. Baig MK, Wexner SD. Postoperative ileus: A review. *Diseases of the colon and rectum*. 2004;47(4):516-26.
15. Chen HW, Chu HC. Migration of gastric bezoars leading to secondary ileus. *Intern Med*. 2011;50(18):1993-5.
16. Lwin TM, Leigh N, Iskandar ME, Steele JG, Wayne MG, Cooperman AM. Rare, uncommon, and unusual complications after pancreaticoduodenal resection. *Surg Clin North Am*. 2018;98(1):87-94.
17. Llobera ND, Pasquini MT, Reberendo MJ, Chapela SP, Maurette R. Enteral nutrition-related small bowel bezoar: a case report and literature review. *Anaesthesiol Intensive Ther*. 2023;55(5):377-81.
18. Socha, L. Linearization in analysis of nonlinear stochastic systems: recent results—part I: theory. *Appl Mech Rev*. 2005;58(3):178-205.
19. Yılmaz K, Turanlı M. A multi-disciplinary investigation of linearization deviations in different regression models. *Asian J Probab Stat*. 2023;22(3):15-9.
20. Biffi WL, Moore EE. Pancreaticoduodenal stent migration resulting in "bezoar ileus". *Am J Surg*. 2000;180(2):115-6.
21. Dedes KJ, Schiesser M, Schäfer M, Clavien PA. Postoperative bezoar ileus after early enteral feeding. *J Gastrointest Surg*. 2006;10(1):123-7.
22. Dikicier E, Altintoprak F, Ozkan OV, Yagmurkaya O, Uzunoglu MY. Intestinal obstruction due to phytobezoars: An update. *World J Clin Cases*. 2015;3(8):721-6.
23. Wang PY, Wang X, Zhang L, et al. Bezoar-induced small bowel obstruction: Clinical characteristics and diagnostic value of multi-slice spiral computed tomography. *World J Gastroenterol*. 2015;21(33):9774-84.

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